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ABSTRACT

A study examined fourth grade students' written definitions to determine if definitions or aspects of definitions were schematized by the students. Subjects, 89 students from several Midwestern suburban school districts and 15 inservice and preservice teachers enrolled at a nearby college, were asked to write definitions of 16 words, four each of nouns, verbs, adjectives, and adverbs. The definitions were classified into seven categories: category, synonym/antonym, explanation, descriptional or functional explanation, instance, use in a sentence, and repetition or association. Results indicated that adults wrote more definitions that were classified as categorical than did the fourth graders. Results also indicated that significant variation existed in the categories of definitions for the different parts of speech. For example, categorical definitions were most common for nouns but almost nonexistent for verbs. Adults showed similar definitional patterns. These results confirm that it is not productive to attempt to conceptualize a single definition frame or schema for all parts of speech but rather to assume multiple definitional schemata. (Five figures of data are included, and 176 references are attached.) (RS)

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Defining is an Unnatural Act:

A Study of Written Definitions

(Running Head: Defining is an Unnatural Act)

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Defining is an Unnatural Act: A Study of Written Definitions

How students become effective dictionary users is a question that most teachers address in the elementary and high school curriculum. That dictionary definitions are often confusing to students, inadequate to the task and not the avenue of first choice for word learning have all been amply documented (Nagy, 1988; Miller and Gildea, 1987), yet literate adults are able to use a dictionary and definitions as tools to develop, refine or express word meanings (Parker,1984; Iris, Litowitz & Evens, 1988).

Schwartz and Raphael have suggested (1985) that students develop a "concept of definition," a schemata for word meaning, which can be utilized in helping students analyze and consolidate what they know about a particular word. To this end, they have experimented with a definition frame reflecting some of the classic Aristotelian definitional categories, and the instructional tasks in filling such a frame, as a tool for vocabulary growth. Such an approach may also be promising for the development of dictionary use strategies and the purpose of the study to be reported here was to analyze children's written definitions in order to determine if definitions or aspects of definitions were schematized by students in the middle elementary grades.

Most of the earlier research on children's definitions which might reveal what sorts of definitional concepts or schemata children have has been carried out for the purpose of investigating how concepts develop (Binet & Simon, 1916; Terman, 1916; Feifel & Lorge, 1950). These studies have suggested that verbal definitions move from

the functional to the abstract as children mature. This movement has been interpreted, particularly by Piagetians, as a function of children reaching stages of more logical cognitive behavior and as indicating that students reach a point at which logical definitions, the Aristotelian model, should be the norm (Al-Issa, 1969; Swartz & Hall, 1972).

There is evidence, however, to challenge this "stage theory" of defining ability. Though most researchers would suggest that there is, indeed, an increase in the abstraction of definitions of school age children, there do not appear to be sudden discontinuous stages of defining behavior (Keil & Batterman, 1984). Rather, it has been suggested that the types of definitions offered or judged as adequate by definers of all ages are subject to variation. Hurlburt (1954) found that nouns lent themselves much more easily to defining tasks. Also, Russell and Saadeh (1962) determined that students who were well able to give abstract definitions preferred to select functional definitions for some words and abstract words for others when offered alternatives. For example, for the word "experience" an abstract definition was normally preferred; for "farmer" a functional definition would be selected, emphasizing that the semantic value of different words require different defining strategies. A third constraint is that the type of definition one can offer depends on one's knowledge of the word being defined (Wolman and Barker, 1965) and of the terms in which it can be defined (Cocks, 1978).

It appears questionable, then, that a single frame, or expectation for filling that frame, could serve in all defining situations. To aid in the formulation of a more generic frame or

alternative frames, we began to investigate the ways in which fourth graders defined words they knew well, looking for categorical regularities. We wondered, in other words, if students gave evidence of having regular schemata for definitions and if, and how, these schemata varied.

Method

Subjects

Subjects were 89 fourth grade students from several Midwestern suburban school districts, and 15 inservice and preservice teachers enrolled in courses at a nearby college. Fourth grade students were chosen because many previous studies had worked with this age level, because it was the level at which abstract thinking has been posited to be established, it is a grade level at which the vocabulary load of school material increases dramatically, and because it is a level at which dictionary instruction is an important component of most curricula. All of the fourth grade students read at least at a fourth grade level on district class materials. The teachers were chosen to provide "mature" definitions for contrastive purposes.

Materials

The list of words to be defined was comprised of 4 each of nouns, verbs, adjectives and adverbs. The words used were: short, beautiful, loudly, queen, to cook, suddenly, red, to jump, chair, to talk, slowly, house, gently, rat, to throw, glad. Each word had a familiarity rating of over 90% for fourth graders (Dale and O'Rourke,), had a synonym or categorical superordinate of at least 75%

familiarity, and was judged as familiar and appropriate by a panel of teachers.

Procedure

Data were collected from the students in four sessions for each of six intact class groups. The students in each class were presented by their teachers with the printed, randomized list of words, four at each session, and directed to write a definition for each word, explaining the meaning for someone who did not know the word. Adults wrote their definitions in either one or four separate sessions.

Scoring

Responses were classified using a modification of the system developed by Feifel and Lorge (1950). The seven classification categories were: category, synonym/antonym, explanation, descriptional or functional explanation, instance, use in a sentence, and repetition or association. Examples of the classification are:

Category - chair = a piece of furniture
glad = in a happy manner

Synonym/Antonym - beautiful = very pretty
short = not very tall

Explanation - short = a very little time or distance
slowly = to take things soft, quiet

Description or Function - house = four walls and a roof
chair = something to sit on

Instance - suddenly = as I turn a corner a car turn and almost hit me

Sentence - She was walking very slowly

Repetition or Association - suddenly = all of a sudden

short and stout

Definitions could be classified in more than one category (e.g. synonym and use in a sentence) if more than one type of information was provided. The two experimenters coded all the definitions and reached an inter-rater agreement of 91% for a random sample of responses.

Results and Discussion

A simple frequency analysis summed across all definitions comparing adults and children suggests results that are consistent with the findings of earlier studies (see Figure 1). While

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Insert Figure 1 about here

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explanation was the most common type of definition given by both groups, adults wrote more definitions that were classified as containing a categorical element than did the younger subjects who produced a slightly larger number of those earlier classified as "inferior," functional and descriptive explanations, instances and sentences containing the target words. However, when results were reorganized by parts of speech, significantly different profiles resulted. For the sake of economy, and because school age children were the primary concern of the study, the following analyses will concentrate primarily on children's definitions. On the whole, the adult results paralleled those of the fourth graders except where specifically indicated.

The classifications so organized (see Figures 2-5) show that

Insert Figures 2-5 about here

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there was a certain amount of regularity within one each part of speech but that some categories were non-existent or virtually so for certain parts of speech. For example, descriptional and functional definitions were not given for adverbs, and rarely given for adjectives, while categorical definitions rarely appeared for verbs. Synonyms and antonyms were commonly provided for adjectives and adverbs and categories were most common for nouns. These results confirm that it is not productive to attempt to conceptualize a single definitions frame for all parts of speech but rather to assume multiple definitional schemata.

Complicating the matter further was the variation that existed within each part of speech that indicated other important influences at the word level. Among nouns, for example, "chair" obviously lends itself more to a functional definition than does "rat." With verbs, "to cook" did not receive a descriptive or functional definition while this response was quite common for "to talk." Thus, words in the same part of speech category may have quite different profiles, while words which were different parts of speech may have similar ones (e.g. "beautiful" and "suddenly.")

Certainly then part of speech and saliency of a certain defining characteristic for a particular word, such as the "rat-chair" example above, are word-determinate variables that affect the type of definition that will be produced. However, there also appear to be definer-determinate variables operating as well. Most significant

were those relating to accessibility of defining terms to the definer, a variable perhaps related to student background. This was apparent in a situation such as the defining of "red" where several adults produced synonyms such as "crimson" or "scarlet," two words with low familiarity ratings for fourth graders who did not produce these, or any other synonyms, for "red." This knowledge relatedness was also apparent in examinations of responses when the same categories were produced. For example, the definitions for the word "queen" had a large number of categories indicated by both adults and fourth graders; however, the category most common for adults was that of "royalty," while for the younger subjects "queen" fell more frequently into the category of "wife" such as the definition, "A queen is the wife of a ruler, sorta like Nancy Raygun."

It is interesting to note that younger subjects often would "mark" categories for which a specific term was inaccessible to them by using a placeholder, words such as, "someone," "a thing," "the way you do something," or by attaching syntactic markers, such as "not fastly," for "slowly" or part of speech designations, such as "n," "v," to their definitions. All these variations and attempts suggest that, while the definer's current knowledge is a significant variable in the defining process, students do have categorical expectations for certain types of definitions even when the information to fill these categories is not immediately accessible.

Besides part of speech, semantic saliency and accessibility variables, defining styles were apparent. Certain subjects, both adult and fourth grade, had preferred modes of responding, some favoring definitions relying on single, frequent synonyms, others

always appending an instance, and so forth. Instruction appears to enter into these stylistic considerations as was noted in the case of definitions with example sentences. Though it appears on the overall analysis (see Figure 1) that fourth grade students had significantly more of this type of response, one class of students accounted for 80% of this type of response, suggesting a strong instructional influence.

Another stylistic tendency that was demonstrated across both groups of subjects was the tendency to "string" definitions. That is, for most of the words, most subjects supplied several different types of categorical responses. Further, the experimenters found it very difficult to develop clear-cut classification categories for definitions for several of the target words. High inter-rater reliability was ultimately achieved by making some rather arbitrary decisions. While this is not particluarly illuminating within the framework of the current analyses, it raises a question about previous analyses which have been cited as evidence for hierarchical developmental patterns. In these reports, the examples supplied were unambiguous, implying that the definitions produced were discrete and thus, could be hierarchically classified; that is, orange was defined only as "fruit" which would be superior to the definition "something you eat." In this study, it was common for a several of the defining categories to co-occur, and we presume, such results also occurred in other research. Without clarity on how these types of results had been handled in earlier research, we are even more skeptical about their interpretation as evidence for a both a hierarchical developmental pattern in definitions and the assumed superiority of definitions with the "higher level" characteristics.

These results, and the problems encountered in the research, suggest a few conclusions, and even more questions, that are relevant to those interested in utilizing this and previous research on children's definitions to inform instruction. The first is that it is not reasonable to expect a single schema to underpin a generalized defining strategy. What is more likely is that certain profiles of definitional categories will apply to differing parts of speech with significant variation within these profiles.

Besides word determinate variables, both the definer's knowledge about the concepts and categories related to the word to be defined and access to terms with which to define it are critical. However, the presence of the "marking" response suggests that students can begin to develop an anticipation for a schematic placeholder even when exact defining terms are not available. Also, knowing that even mature definers tend to string definitions suggest that hierarchical criteria for evaluating definitions are not appropriate. Rather there should be a great enough latitude in judging what is acceptable to allow for variations in knowledge and style among definers.

This stringing characteristic also suggests an interesting direction for further research on children's definitions. It is clear that the categories utilized in this and prior research provide only rough approximations of what consitutes the information contained in a definition. A reevaluation of this data looking at co-occurences of categories may reveal regular profiles based of types of information which tend to appear together. For example, when a synonym is give, what other type of information tends to be presented to give more specifying information? This type of investigation could provide

probabilistic schemata for different words and word types. A second type of analysis that may be productive is one based on categories of information type similar to those used for analyzing contextual information (Sternberg, Powell & Kaye, 1983). For example, does a definition provide information about placement in space, value, extension, existence, and so forth? These linguistic information categories may prove more productive that those emphasizing hierarchical classification.

A third type of investigation that is relevant to the information reported here would be to undertake a comparison of children's definitions with those provided in reference materials intended for their use. Such comparisons would be useful in several respects. They would suggest ways to modify existing references so that definitions can be recast to match the expectations of young reference users. Alternatively, children's own definitions could be used as an initial framework to help them reorganize the information references contain in line with their own schemata or to modify their own schemata when appropriate. In either case, such comparisons would provide starting points for constructing dynamic instruction that builds upon what children already know.

REFERENCES

Al-Issa, I. (1969). The development of word definition in children. Journal of Genetic Psychology, 114, 25-28.

Binet, A., & Simon, T. (1916). The development of intelligence in children. Vinelands, N.J.: Publications of the Training School.

Cocks, P. J. (1978). Language effects in the definition and inclusion tasks. Unpublished doctoral dissertation, University of Chicago.

Dale, E., & O'Rourke, J. (1981). The living word vocabulary: A national vocabulary inventory. Chicago: World Book - Childcraft International.

Feifel, H., & Lorge, I. (1950). Qualitative differences in the vocabulary responses of children. Journal of Educational Psychology, 41, 1-18.

Hurlburt, D. (1954). The relative value of recall and recognition techniques for measuring precise knowledge of word meaning - nouns, verbs and adjectives. Journal of Educational Research, 47, 561-576.

Iris, M. A., Litowitz, B. E., & Evens, M. W. (1988). Moving towards literacy by making definitions. International Journal of Lexicography, 1, 238-252.

Keil, F. C., & Batterman, N. (1984). A characteristic-to-defining shift in the development of word meaning. Journal of Verbal Learning and Verbal Behavior, 23, 221-236.

Miller, G. A., & Gildea, P. M. (1987). How children learn words. Scientific American, 257(3), 94-99.

Nagy, W. E. (1988). Teaching vocabulary to improve reading comprehension. Newark, DE: International Reading Association.

Parker, S. L. (1984). A comparison of four types of initial vocabulary instruction. Unpublished master's thesis, University of Minnesota, Minneapolis.

Russell, D. H., & Saadeh, I. Q. (1962). Qualitative levels in children's vocabularies. Journal of Educational Psychology, 53, 170-174.

Schwartz, R. M., & Raphael, T. E. (1985). Concept of definition: A key to improving students' vocabulary. The Reading Teacher, 39, 198-205.

Sternberg, R.J., Powell, J. S., & Kaye, D. B. (1983). Teaching vocabulary-building skills: A contextual approach. In A.C. Wilkinson (Ed.). Classroom computers and cognitive science. New York: Academic Press, 121-143.

Swartz, K., & Hall, A. (1972). Development of relational concepts and word definitions in children five through eleven. Child Development, 43, 239-244.

Terman, L. M. (1916). The measurement of intelligence. Boston: Houghton Mifflin.

Wolman, R. N., & Barker, E. N. (1965). A developmental study of word definitions. Journal of Genetic Psychology, 107, 159-166.

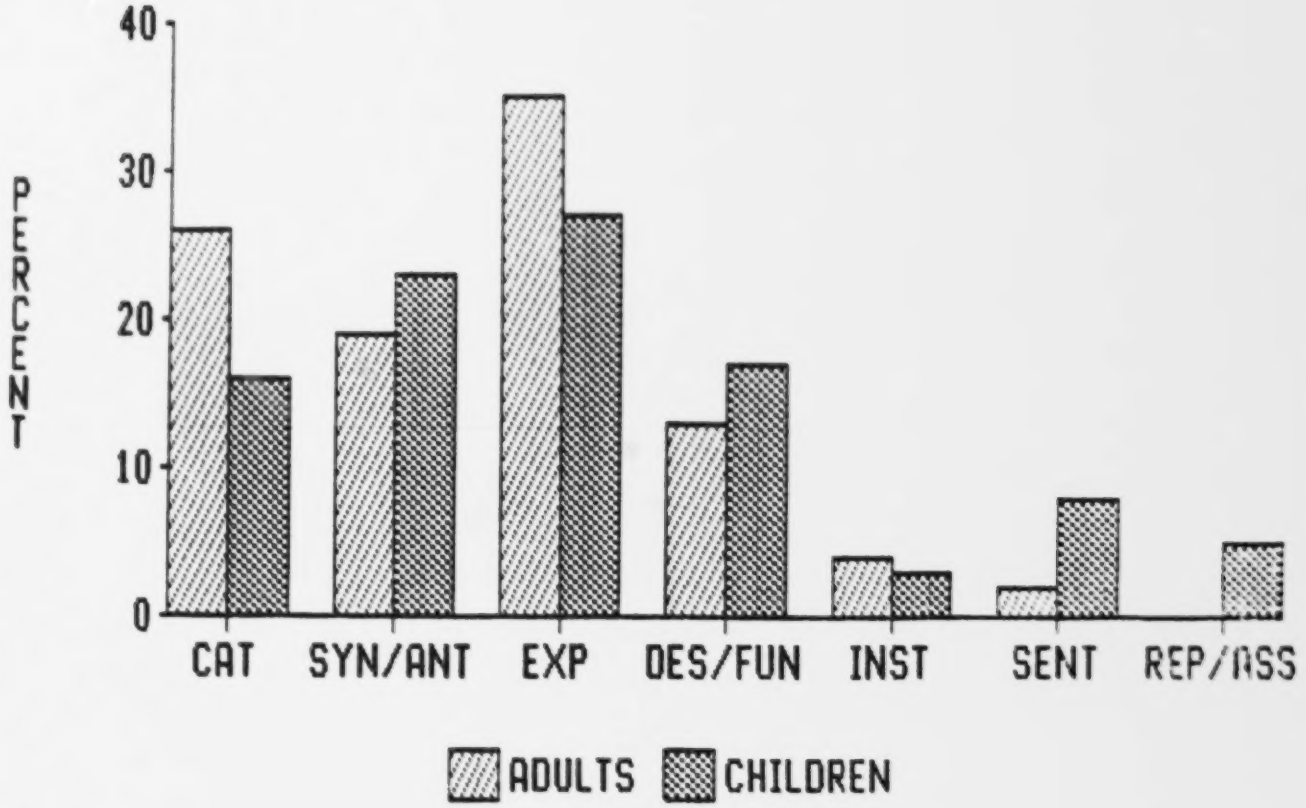

Figure 1. Percentage of adults' and children's definitions in each category for all words.

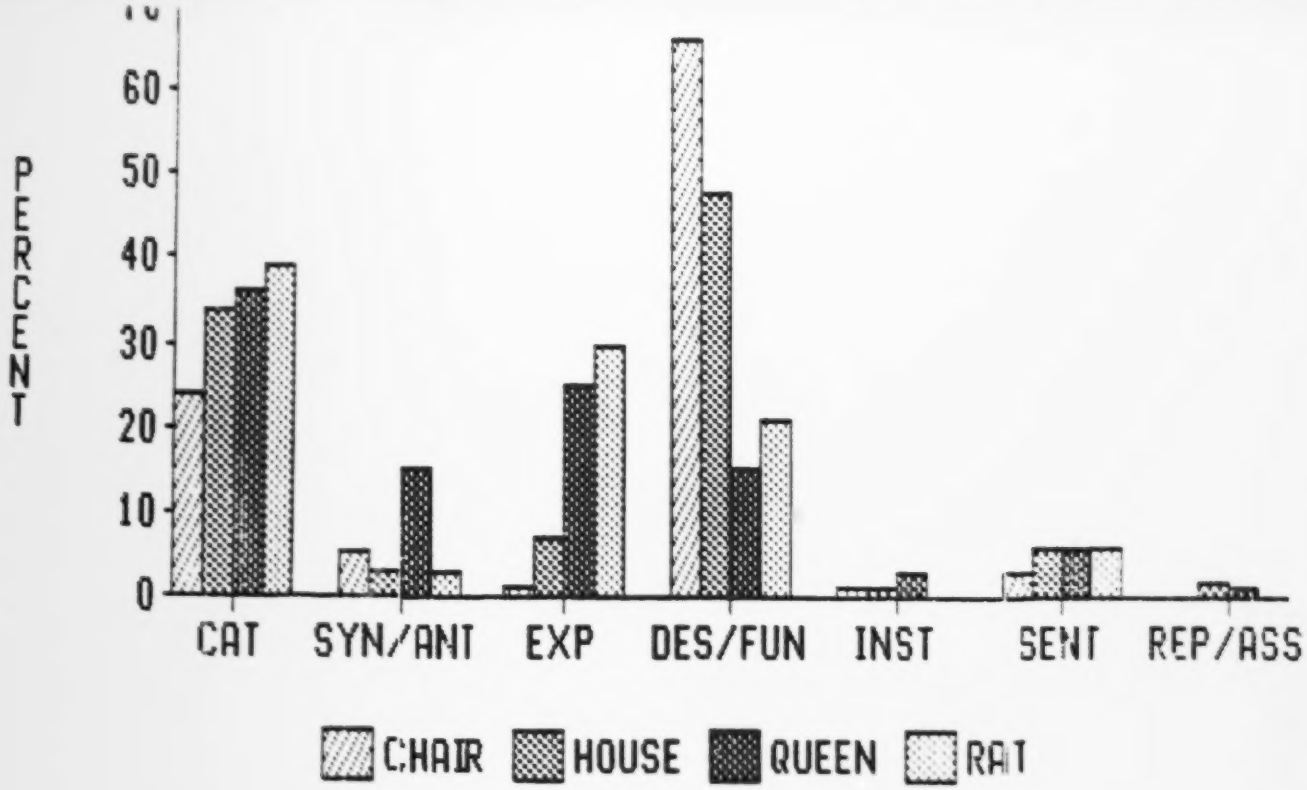

Figure 2. Percentage of children's noun definitions in each category.

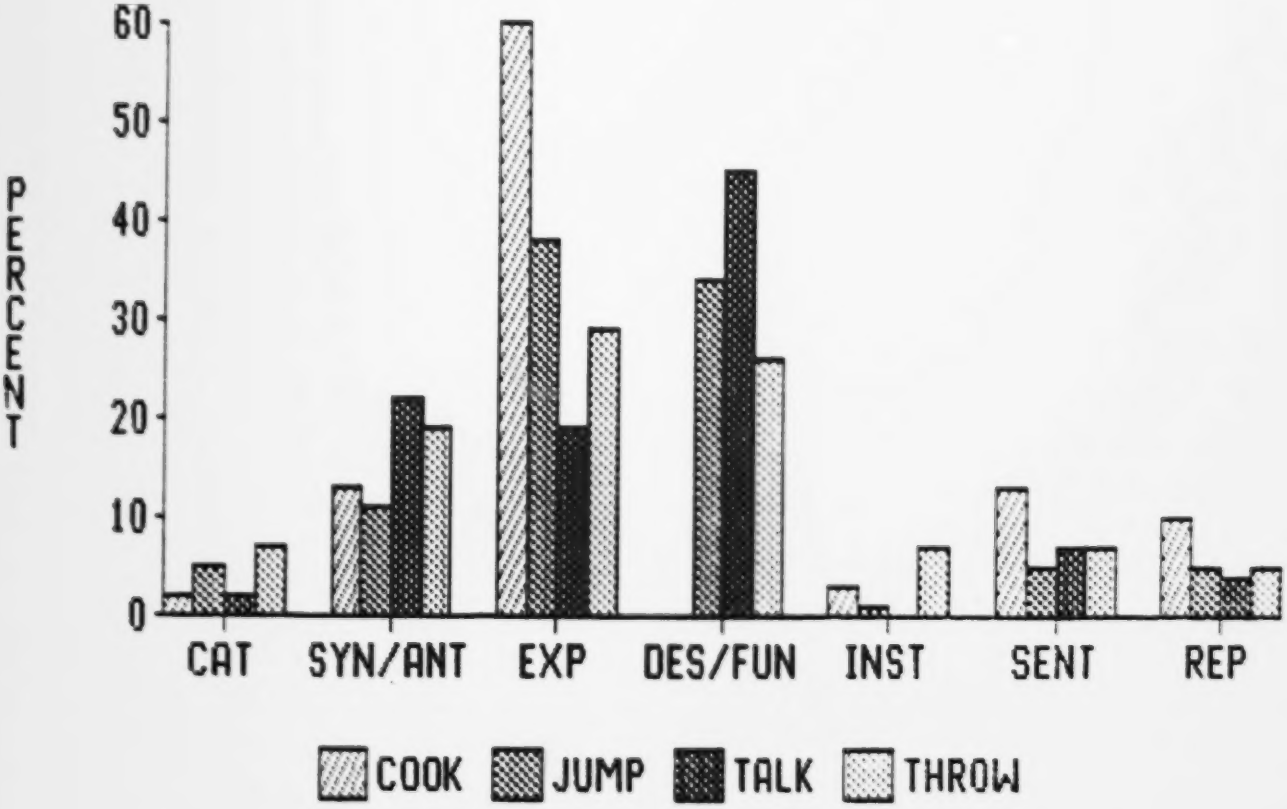

Figure 3. Percentage of children's verb definitions in each category.

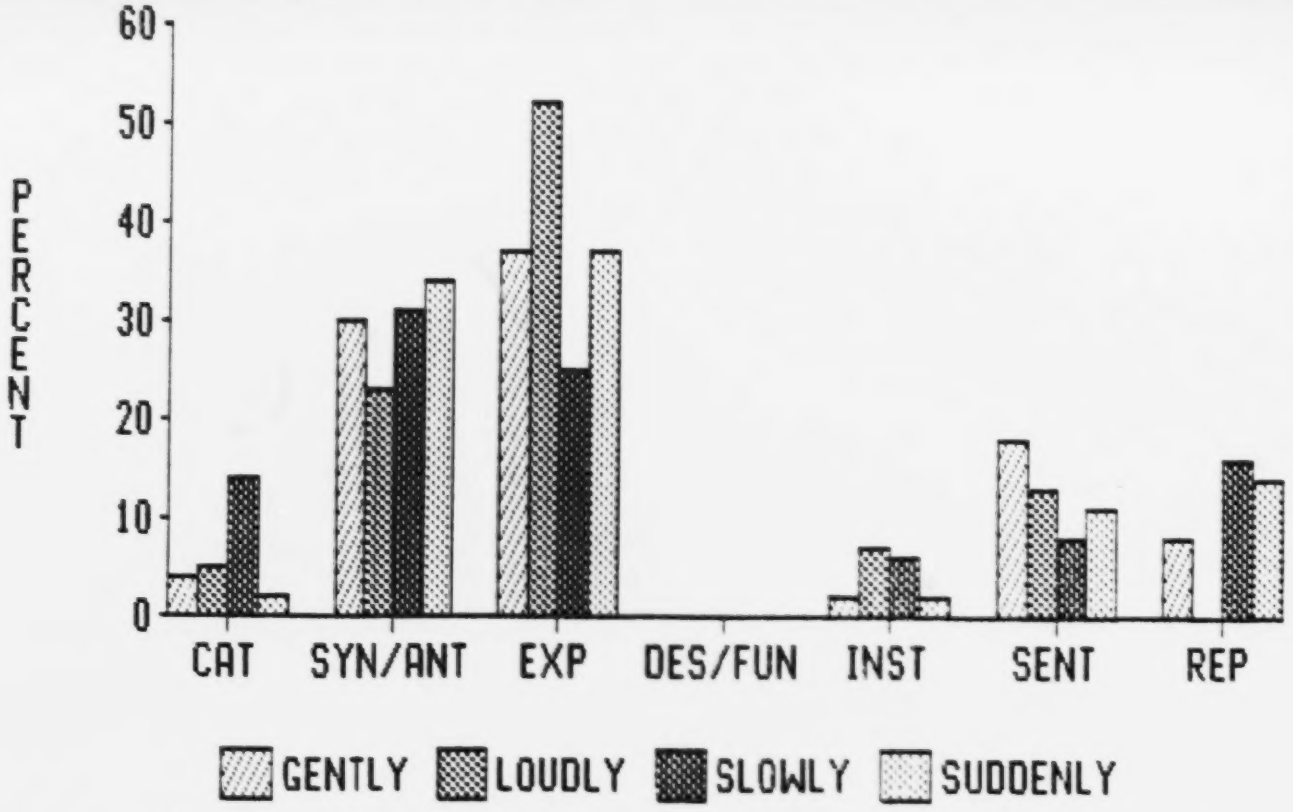

Figure 4. Percentage of children's adverb definitions in each category.

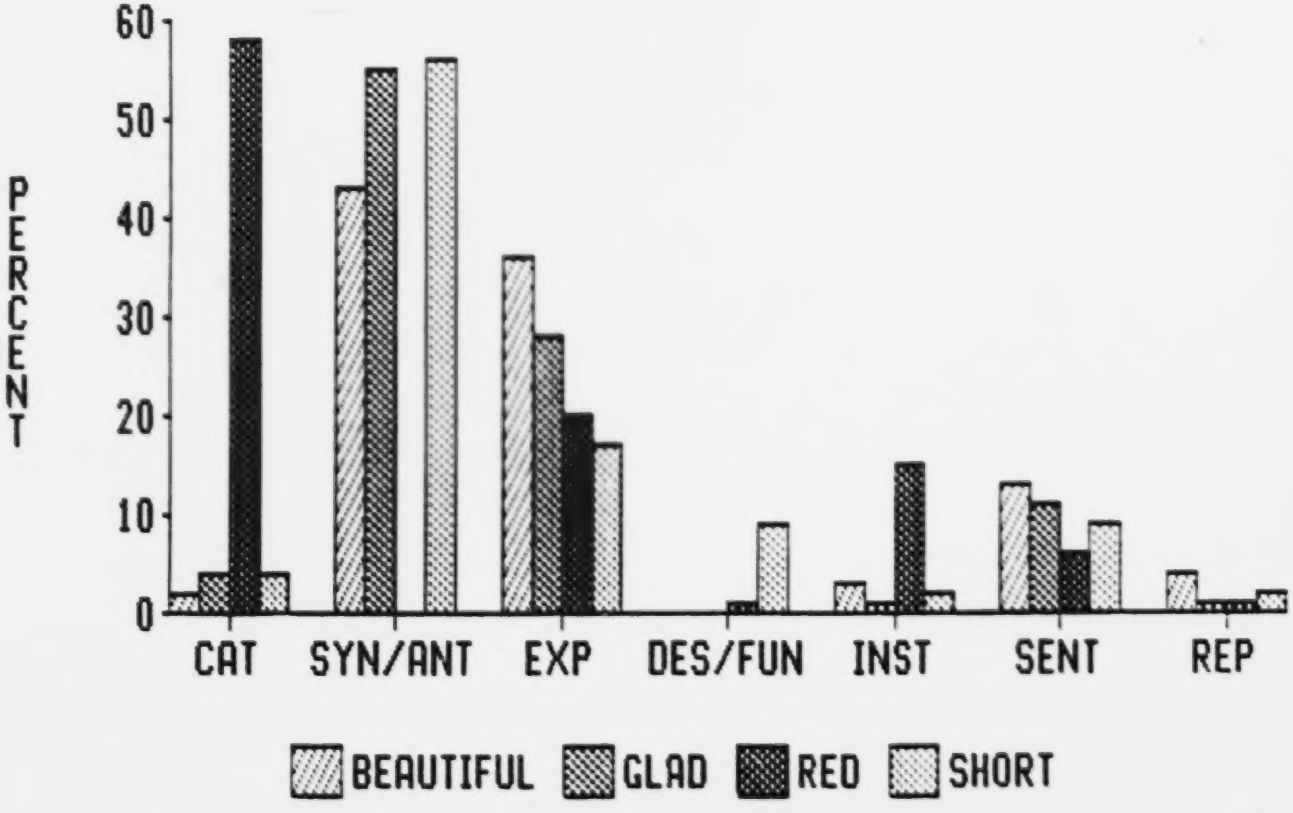

Figure 5. Percentage of children's adjective definitions in each category.